

Claims

[c1]

1. A method for bandwidth allocation on a network comprising:

A. building an active channel dynamically from one or more time slots on a time division multiplexed network; and

B. resizing said active channel dynamically based on one of the items selected from the group consisting of a minimum bandwidth value, a maximum bandwidth value, and a bandwidth priority value.

[c2]

2. A method for bandwidth allocation on a network as recited in claim 1, further comprising the step of creating a virtual channel which is used to instantiate said active channel.

[c3]

3. A method for bandwidth allocation on a network as recited in claim 2, wherein building said active channel further comprises building said active channel on a single network.

[c4]

4. A method for bandwidth allocation on a network as recited in claim 2, wherein building said active channel further comprises building said active channel on a time division multiplexed network consisting of 16 time slots and a framing time slot.

[c5]

5. A method for bandwidth allocation on a network as recited in claim 2, wherein resizing said active channel further comprises resizing said active channel based on four said bandwidth priority values.

[c6]

6. A method for bandwidth allocation on a network as recited in claim 2, wherein building said active channel further comprises building said active channel with said one or more time slots of equal size.

[c7]

7. A method for bandwidth allocation on a network as recited in claim 2, further comprising the step of encrypting an active channel.

[c8]

8. A method for bandwidth allocation on a network as recited in claim 2, wherein building said active channel further comprises building said active channel from said one or more time slots which are contiguous.

[c9]

9. A method for bandwidth allocation on a network as recited in claim 2, wherein building said active channel further comprises building said active channel from said one or more time slots which are non-contiguous.

[c10]

10. A method for bandwidth allocation on a network as recited in claim 2, wherein building said active channel further comprises building said active channel on said network which further comprises a network selected from the group consisting of a power line network, a wireless network, a light frequency network, an acoustic network, and a wired network.

[c11]

11. A method for bandwidth allocation on a network comprising:

A. building an active channel dynamically from one or more time slots in a time division multiplexed network; and

B. deleting an active channel dynamically based on one of the items selected from the group consisting of a minimum bandwidth value, a maximum bandwidth value, and a bandwidth priority value.

[c12]

12. A method for bandwidth allocation on a network as recited in claim 11, further comprising the step of creating a virtual channel which is used to instantiate said active channel.

[c13]

13. A method for bandwidth allocation on a network as recited in claim 12, wherein deleting said active channel further comprises building said active channel on a single network.

[c14]

14. A method for bandwidth allocation on a network as recited in claim 12, wherein deleting said active channel further comprises deleting said active channel on a time division multiplexed network consisting of 16 time slots and a framing time slot.

[c15]

15. A method for bandwidth allocation on a network as recited in claim 12, wherein deleting said active channel further comprises deleting said active channel based on four said bandwidth priority values.

[c16]

16. A method for bandwidth allocation on a network as recited in claim 12, wherein deleting said active channel further comprises deleting said active channel with said one or more time slots of equal size.

[c17]

17. A method for bandwidth allocation on a network as recited in claim 12, further comprising the step of encrypting an active channel.

[c18]

18. A method for bandwidth allocation on a network as recited in claim 12, wherein deleting said active channel further comprises deleting said active channel from said one or more time slots which are contiguous.

[c19]

19. A method for bandwidth allocation on a network as recited in claim 12, wherein deleting said active channel further comprises deleting said active channel from said one or more time slots which are non-contiguous.

[c20]

20. A method for bandwidth allocation on a network as recited in claim 12, wherein deleting said active channel further comprises deleting said active channel on said network which further comprises a network selected from the group consisting of a power line network, a wireless network, a light frequency network, an acoustic network, and a wired network.

[c21]

21. A method for bandwidth allocation on a network comprising:

A. building an active channel dynamically from time slots in a time division multiplexed network based on one of the items selected from the group consisting of a minimum bandwidth value, a maximum bandwidth value, and a bandwidth priority value.

[c22]

22. A method for bandwidth allocation on a network as recited in claim 21, further comprising the step of creating a virtual channel which is used to instantiate said active channel.

[c23]

23. A method for bandwidth allocation on a network as recited in claim 22, wherein building said active channel further comprises building said active channel on a single network.

[c24]

24. A method for bandwidth allocation on a network as recited in claim 22, wherein building said active channel further comprises building said active channel on a time division multiplexed network consisting of 16 time slots and a framing time slot.

[c25]

25. A method for bandwidth allocation on a network as recited in claim 22, wherein resizing said active channel further comprises resizing said active channel based on four said bandwidth priority values.

[c26]

26. A method for bandwidth allocation on a network as recited in claim 22, wherein building said active channel further comprises building said active channel with said one or more time slots of equal size.

[c27]

27. A method for bandwidth allocation on a network as recited in claim 22, further comprising the step of encrypting an active channel.

[c28]

28. A method for bandwidth allocation on a network as recited in claim 22, wherein building said active channel further comprises building said active channel from said one or more time slots which are contiguous.

[c29]

29. A method for bandwidth allocation on a network as recited in claim 22, wherein building said active channel further comprises building said active channel from said one or more time slots which are non-contiguous.

[c30]

30. A method for bandwidth allocation on a network as recited in claim 22, wherein building said active channel further comprises building said active channel on said network which further comprises a network selected from the group consisting of a power line network, a wireless network, a light frequency network, an acoustic network, and a wired network.

[c31]

31. A method for bandwidth reclamation on a network comprising:

A. building an active channel dynamically from time slots in a time division multiplexed network;

B. sending query packets to nodes using said active channel; and

C. removing said active channel when one or more network nodes fail to respond to query packets.

[c32]

32. A method for bandwidth reclamation on a network as recited in claim 31, further comprising the step of creating a virtual channel which is used to instantiate said active channel.

[c33]

33. A method for bandwidth reclamation on a network as recited in claim 32, wherein building said active channel further comprises building said active channel with a single node using said active channel.

[c34]

34. A method for bandwidth reclamation on a network as recited in claim 32, wherein building said active channel further comprises building said active channel from any one of said one or more network nodes using said active channel.

[c35]

35. A method for bandwidth reclamation on a network as recited in claim 32, wherein removing said active channel further comprises removing said active channel if one or less of said network nodes responds to said query packets.

[c36]

36. A method for bandwidth reclamation on a network as recited in claim 32, further comprising the step of removing a node from an active channel by sending a remove from channel message.

[c37]

37. A system for bandwidth allocation on a network comprising:

A. a plurality of network nodes forming a network;

B. wherein one or more of said plurality of network nodes further comprises a bandwidth master control node responsible for bandwidth allocation on said network;

C. said network which further comprises a time division multiplexed data transfer mechanism which is divided into a plurality of time slots, wherein said time slots are grouped together to form one or more active channels by said bandwidth master control node; and

D. wherein said one or more active channels are dynamically resized based on one of the items selected from the group consisting of a minimum bandwidth value, a maximum bandwidth value, and a bandwidth priority value.

[c38]

38. A system for bandwidth allocation on a network as recited in claim 37 wherein a virtual channel is created which is used to instantiate said one or more active channels.

[c39]

39. A system for bandwidth allocation on a network as recited in claim 38 wherein said data transfer mechanism further comprises 16 time slots and a framing time slot.

[c40]

40. A system for bandwidth allocation on a network as recited in claim 38 wherein said bandwidth priority value comprises four priorities.

[c41]

41. A system for bandwidth allocation on a network as recited in claim 38 wherein said time slots are of equal size.

[c42]

42. A system for bandwidth allocation on a network as recited in claim 38 wherein at least one of said one or more active channels are encrypted.

[c43]

43. A system for bandwidth allocation on a network as recited in claim 38 wherein said one or more active channels are created using said plurality of time slots which are contiguous.

[c44]

44. A system for bandwidth allocation on a network as recited in claim 38 wherein said one or more active channels are created using said plurality of time slots which are non-contiguous.

[c45]

45. A system for bandwidth allocation on a network as recited in claim 38 wherein said network is a network selected from the group consisting of a wireless network, a light frequency network, a power line network, an acoustic network and a wired network.

[c46]

46. A system for bandwidth allocation on a network comprising:

A. a plurality of network nodes forming a network;

- B. wherein one or more of said plurality of network nodes further comprises a bandwidth master control node responsible for bandwidth allocation on said network;
- C. said network which further comprises a time division multiplexed data transfer mechanism which is divided into a plurality of time slots, wherein said time slots are grouped together to form one or more active channels by said bandwidth master control node; and
- D. wherein said one or more active channels are dynamically deleted based on one of the items selected from the group consisting of a minimum bandwidth value, a maximum bandwidth value, and a bandwidth priority value.

[c47]

47. A system for bandwidth allocation on a network as recited in claim 46 wherein a virtual channel is created which is used to instantiate said one or more active channels.

[c48]

48. A system for bandwidth allocation on a network as recited in claim 47 wherein said data transfer mechanism further comprises 16 time slots and a framing time slot.

[c49]

49. A system for bandwidth allocation on a network as recited in claim 47 wherein said bandwidth priority value comprises four priorities.

[c50]

50. A system for bandwidth allocation on a network as recited in claim 47 wherein said time slots are of equal size.

[c51]

51. A system for bandwidth allocation on a network as recited in claim 47 wherein at least one of said one or more active channels are encrypted.

[c52]

52. A system for bandwidth allocation on a network as recited in claim 47 wherein said one or more active channels are created using said plurality of time slots which are contiguous.

[c53]

53. A system for bandwidth allocation on a network as recited in claim 47 wherein said one or more active channels are created using said plurality of time slots which are non-contiguous.

[c54]

54. A system for bandwidth allocation on a network as recited in claim 47 wherein said network is a network selected from the group consisting of a wireless network, a light frequency network, a power line network, and a wired network.

[c55]

55. A system for bandwidth allocation on a network comprising:

A. a plurality of network nodes forming a network;

B. wherein one or more of said plurality of network nodes further comprises a bandwidth master control node responsible for bandwidth allocation on said network;
and

C. said network which further comprises a time division multiplexed data transfer mechanism which is divided into a plurality of time slots, wherein said time slots are grouped together to form one or more active channels by said bandwidth master control node.

[c56]

56. A system for bandwidth allocation on a network as recited in claim 55 wherein a virtual channel is created which is used to instantiate said one or more active channels.

[c57]

57. A system for bandwidth allocation on a network as recited in claim 56 wherein said data transfer mechanism further comprises 16 time slots and a framing time slot.

[c58]

58. A system for bandwidth allocation on a network as recited in claim 56 wherein said bandwidth priority value comprises four priorities.

[c59]

59. A system for bandwidth allocation on a network as recited in claim 56 wherein said time slots are of equal size.

[c60]

60. A system for bandwidth allocation on a network as recited in claim 56 wherein at least one of said one or more active channels are encrypted.

[c61]

61. A system for bandwidth allocation on a network as recited in claim 56 wherein said one or more active channels are created using said plurality of time slots which are contiguous.

[c62]

62. A system for bandwidth allocation on a network as recited in claim 56 wherein said one or more active channels are created using said plurality of time slots which are non-contiguous.

[c63]

63. A system for bandwidth allocation on a network as recited in claim 56 wherein said network is a network selected from the group consisting of a wireless network, a light frequency network, a power line network, and a wired network.

[c64]

64. A system for bandwidth reclamation on a network comprising:

A. a plurality of network nodes forming a network;

B. wherein one or more of said plurality of network nodes further comprises a bandwidth master control node responsible for bandwidth allocation on said network;

C. said network which further comprises a time division multiplexed data transfer mechanism which is divided into a plurality of time slots, wherein said time slots are grouped together to form one or more active channels by said bandwidth master control node; and

D. wherein said one or more active channels are reclaimed by said bandwidth master control node based on the number of responses to query packets.

[c65]

65. A system for bandwidth reclamation as recited in claim 64 wherein said number responses to query packets is zero.

[c66]

66. A system for bandwidth reclamation as recited in claim 64 wherein said number responses to query packet is one or less.

[c67]

67. A system for bandwidth reclamation as recited in claim 64 wherein said active channel can only be created by a control node.

[c68]

68. A system for bandwidth reclamation as recited in claim 64 wherein said active channel can be created by any one of said plurality of network nodes.

[c69]

69. A system for bandwidth reclamation as recited in claim 64 wherein at least one of said plurality of network nodes are removed from said one or more active channels by receiving a packet from said bandwidth master control node.